

IN THE UNITED STATES PATENT & TRADEMARK OFFICE
Group Art Unit 1793

In re)
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Patent Application of)
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Anthony CHAMBERLAIN et al.)
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Application No.: 10/524,574)
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Filing Date: 01 July 2005)
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International Appl'n No. PCT/AU2003/001037)
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International Filing Date: 15 August 2003)
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Confirmation No.: 8317)
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Examiner: Zhu, Weiping)
)
"RECOVERING NICKEL")
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AMENDMENT AND RESPONSE TO OFFICE ACTION

Mail Stop: Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action dated November 2, 2007, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

In the Claims:

Please amend the following claims as indicated:

Claim 1. (Currently Amended): A process for recovering a valuable ~~metals~~ metal from a leach liquor obtained by processing laterite ores and concentrates that are contaminated with iron; by any leaching process including one or more of heap leaching, pressure leaching, bacterial oxidation, and atmospheric tank leaching, the leach liquor containing the valuable metal and iron in solution, which process includes the steps of:

- (a) processing the leach liquor by reducing ferric ions to ferrous ions in the a leach liquor ~~containing a valuable metal and iron in solution~~ using a suitable reductant, the leach liquor being obtained by processing laterite ores or concentrates of the ores that contain the valuable metal and are contaminated with iron;
- (b) ~~neutralising~~ neutralizing the liquor to reduce the free acid concentration in solution to levels suitable for nickel precipitation; and
- (c) precipitating the valuable metal using the reductant and seed particles under process conditions, including one or more of seed particle size, seed composition, and temperature, that are selected to ~~maximise~~ maximize nickel precipitation and to ~~minimise~~ minimize iron precipitation.

Claim 2. (Original): The process defined in claim 1 wherein the reduction step (a) includes reducing ferric ions to ferrous ions using the reductant in the presence of 40-90 g/l free acid.

Claim 3. (Previously Amended): The process defined in claim 1 wherein the reductant is a gaseous reductant.

Claim 4. (Original): The process defined in claim 3 wherein the gaseous reductant is H₂S.

Claim 5. (Currently Amended): The process defined in claim 1 wherein the ~~neutralisation~~ neutralization step (b) increases the pH of the solution to 2.

Claim 6. (Currently Amended): The process defined in claim 1 wherein the ~~neutralisation~~ neutralization step (b) maintains iron in the ferrous state.

Claim 7. (Previously Amended): The process defined in claim 1 wherein the valuable metal is nickel.

Claim 8. (Previously Amended): The process defined in claim 1 wherein the valuable metals are nickel and cobalt.

Claim 9. (Previously Amended): The process defined in claim 1 wherein the laterite ores are ores that contain nickel in a chlorite mineral phase.

Claim 10. (Previously Amended): The process defined in claim 1 wherein the process conditions for the precipitation step (c) include operating at a partial pressure of the gaseous reductant of less than 60 psi.

Claim 11. (Original): The process defined in claim 10 wherein the gas partial pressure is less than 40 psi.

Claim 12. (Original): The process defined in claim 11 wherein the gas partial pressure is less than 30 psi.

Claim 13. (Original): The process defined in claim 12 wherein the gas partial pressure be less than 25 psi.

Claim 14. (Previously Amended): The process defined in claim 1 wherein the process conditions for the precipitation step (c) include operating at a liquor temperature of at least 50°C.

Claim 15. (Original): The process defined in claim 14 wherein the liquor temperature is at least 60°C.

Claim 16. (Previously Amended): The process defined in claim 1 wherein the seed particles for the precipitation step (c) have a particle size of P_{50} less than 100 micron.

Claim 17. (Original): The process defined in claim 16 wherein the particle size of the seed particles is P_{50} less than 80 micron.

Claim 18. (Original): The process defined in claim 17 wherein the particle size of the seed

particles be P_{50} less than 60 micron.

Claim 19. (Previously Amended): The process defined in claim 16 wherein the seed particle concentration for the precipitation step (c) is greater than 30g/l.

Claim 20. (Original): The process defined in claim 17 wherein the seed particle concentration is greater than 40g/l.

Claim 21. (Previously Amended): The process defined in claim 1 wherein the ratio of iron and the valuable metal in the leach liquor supplied to step (a) is greater than 2:1.

Claim 22. (Original): The process defined in claim 21 wherein the ratio is greater than 3:1.

Claim 23. (Original): The process defined in claim 22 wherein the ratio is greater than 5:1.